

AMENDMENT

Kindly amend the application as follows.

Amendments to the Claims:

Claims 1-8 (Canceled).

Claim 9 (Currently Amended): A method for identifying a compound that modulates a biological activity of a serotonin-gated anion channel, said method comprising the steps of:

- (a) contacting a cell with a first purified nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42°C in about 50% formamide followed by a first wash at about 42 65°C in about 6 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about 50 65°C in about 6 1X SSC sodium chloride/sodium citrate solution and about 1 0.1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence of SEQ ID NO:2, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions into or out of said cell in response to binding serotonin, and wherein said first nucleic acid sequence is expressed in said cell;
- (b) administering a test compound to said cell; and

(c) assaying a modulation in current flux into or out of said cell, wherein a modulation in current flux into or out of said cell, relative to a control cell not contacted with said first nucleic acid sequence, is indicative of a compound that modulates said biological activity of said serotonin-gated anion channel.

Claim 10 (Canceled).

Claim 11 (Currently Amended): A method for characterizing a drug compound as being associated with a serotonin-mediated cellular response, said method comprising detecting a modulation in current flux through a purified substantially pure serotonin-gated anion channel having a polypeptide sequence encoded by a first nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42°C in about 50% formamide followed by a first wash at about ~~42~~ 65°C in about ~~6~~ 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about ~~50~~ 65°C in about ~~6~~ 1X SSC sodium chloride/sodium citrate solution and about ~~4~~ 0.1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence of SEQ ID NO:2, when said channel is exposed to said drug compound, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions from one side of a membrane to the other in response to binding serotonin, wherein said modulation in current flux is

indicative of said ~~drug~~ compound being associated with a serotonin-mediated cellular response.

Claims 12-19 (Canceled).

Claim 20 (Currently Amended): A method for identifying a compound that modulates the activity of a serotonin-gated anion channel, said method comprising the steps of:

(a) exposing a transgenic nematode that over-expresses a serotonin-gated anion channel encoded by a first purified nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42°C in about 50% formamide followed by a first wash at about 42 65°C in about 6 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about ~~50~~ 65°C in about ~~6~~ 1X SSC sodium chloride/sodium citrate solution and about ~~1~~ 0.1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence of SEQ ID NO:2, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions from one side of a membrane to the other in response to binding serotonin, to a test compound;

- (b) assaying the locomotion rate of said nematode; and
- (c) comparing said locomotion rate to that of a control nematode receiving no test compound, wherein a modulation in said locomotion rate indicates a compound that modulates the activity of a serotonin-gated anion channel.

Claim 21 (Currently Amended): A method for identifying a compound that modulates the activity of a serotonin-gated anion channel in a liquid locomotion assay, said method comprising the steps of:

- (a) exposing a transgenic nematode that over-expresses a serotonin-gated anion channel encoded by a first purified nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42 °C in about 50% formamide followed by a first wash at about 42 65 °C in about 6 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about 50 65 °C in about 6 1X SSC sodium chloride/sodium citrate solution and about ± 0.1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence of SEQ ID NO:2, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions from one side of a membrane to the other in response to binding serotonin, to a test compound;

- (b) quantifying the number of nematodes actively swimming after exposure to said test compound; and
- (c) comparing the number of said actively swimming nematodes to that of control nematodes receiving no test compound, wherein a modulation in said number of actively swimming nematodes indicates a compound that modulates the activity of a serotonin-gated anion channel.

Claims 22-23 (Canceled).

Claim 24 (Previously Presented): The method of claim 9, wherein said modulation in current flux is a decrease in current flux.

Claim 25 (Previously Presented): The method of claim 9, wherein said modulation in current flux is an increase in current flux.

Claim 26 (Canceled).

Claim 27 (Previously Presented): The method of claim 11, wherein said modulation in current flux is a decrease in current flux.

Claim 28 (Previously Presented): The method of claim 11, wherein said

modulation in current flux is an increase in current flux.

Claims 29-33 (Canceled).

Claim 34 (New): A method for identifying a compound that modulates a biological activity of a serotonin-gated anion channel, said method comprising the steps of:

- (a) providing an isolated cell expressing a heterologous first nucleic acid sequence that hybridizes, under conditions comprising hybridization at about 42°C in about 50% formamide followed by a first wash at about 65°C in about 2X SSC sodium chloride/sodium citrate solution and about 1% Sodium Dodecyl Sulfate, and a second wash at about 65°C in about 1X SSC sodium chloride/sodium citrate solution and about 0.1% Sodium Dodecyl Sulfate, to a second nucleic acid sequence comprising the complement of the sequence of SEQ ID NO:2, wherein said first nucleic acid sequence encodes a serotonin-gated anion channel that selectively permits passage of anions into or out of said cell in response to binding serotonin, and wherein said first nucleic acid sequence is expressed in said cell;
- (b) administering a test compound to said cell; and

(c) assaying a modulation in current flux into or out of said cell, wherein a modulation in current flux into or out of said cell, relative to a control cell not expressing said first nucleic acid sequence, is indicative of a compound that modulates said biological activity of said serotonin-gated anion channel.

Claim 35 (New): The method of claim 34, wherein said modulation in current flux is a decrease in current flux.

Claim 36 (New): The method of claim 34, wherein said modulation in current flux is an increase in current flux.